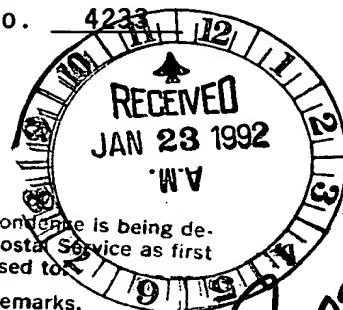




IN UNITED STATES PATENT & TRADEMARKS OFFICE
RESPONSE/AMENDMENT

Case Docket No. 4233

THE COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231



Dear Sir:

Transmitted herewith is a RESPONSE for the patent application:

Inventor(s): DONALD B. APPLEBY et al.

Serial No.: 07/580,706

Date Filed: September 11, 1990

Title: POLYOL POLYESTER SYNTHESIS

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:

Commissioner of Patents & Trademarks,
Washington, D. C. 20231,

on January 8, 1992

1. ☒ No additional fee is known to be required.
2. ☐ The fee has been calculated as shown below:

Eric W. Gutttag
Registration No. 28,853

(Col. 1)			(Col. 2)	(Col. 3)	OTHER THAN A SMALL ENTITY	
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA*	RATE	FEE
TOTAL	*	MINUS	**	=	x \$ 20 =	\$
INDEP.	*	MINUS	***	=	x \$ 60 =	\$
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM					+ \$200 =	\$
					TOTAL	\$

* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

** If the highest number of total claims previously paid for is less than 20, write "20" in this space.

*** If the highest number of independent claims previously paid for is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment or the number of claims originally filed.

3. ☒ The Commissioner is hereby petitioned under 37 CFR §1.136(a) to grant any extension of time needed for timely response to the Office Action dated September 12, 1991 in the above-identified application to preserve pendency of said application. The processing fee under 37 CFR §1.17 has been determined as follows: \$ 110.00 for a one (1) month extension of time.
4. The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 16-2480. A duplicate copy of this sheet is attached.
- a. ☒ Any patent application processing fees under 37 CFR §1.16.
b. ☒ Any patent application processing fees under 37 CFR §1.17.
5. The Commissioner is hereby authorized to make any additional copies of this sheet needed to accomplish the purposes provided for herein and to charge any fee for such copies to Deposit Account No. 16-2480.

Eric W. Gutttag

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Date January 8, 1992
Cincinnati, Ohio

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Case 4233

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of :
DONALD B. APPLEBY ET AL. :
Serial No. 07/580,706 : Group Art Unit 183
Filed September 11, 1990 : Examiner E. White
POLYOL POLYESTER SYNTHESIS :

#8-92
1-30-92
IW

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR 1.56, 1.97, 1.98 and 1.99

The Commissioner of Patents and Trademarks

Washington, D.C. 20231

Dear Sir:

In accordance with 37 CFR 1.56, 1.97, 1.98 and 1.99, Applicants request that the Examiner make of record the documents listed on the attached PTO-1449 form. Copies of these documents are also enclosed. In accordance with MPEP 609, the Examiner is requested to send Applicants a copy of the attached PTO-1449 form with each listed document initialed in the space provided.

The Examiner may wish to consider these documents in the examination of the above application. The presentation of these documents is not an admission of any kind, and is particularly not an admission that any of these documents are properly citable against the above application.

All comments which follow are believed to be a fair representation or characterization of each document. However, the order of presentation and following comments should not be substituted for the Examiner's complete consideration of each document.

European patent application 383,404 (Buter), published August 22, 1990, discloses a process for making polyol polyesters (e.g., sucrose polyesters) involving a two-stage transesterification of the

polyol (e.g., sucrose) with a fatty acid lower alkyl ester (e.g., fatty acid methyl esters). The process comprises a continuous first reaction stage in a first reaction zone wherein a steady-state conversion is achieved of over 1% and a second reaction stage in which the reaction mixture from the first zone is further reacted to the required polyol polyesters in one or more subsequent reaction zones. Preferred aspects of this continuous process include the following:

- a. Molar ratios of fatty acid lower alkyl esters to sucrose of from 10:1 to 20:1, preferably from 10.5:1 to 18:1, most preferably from 10.5:1 to 14:1 (see page 2, lines 41-45);
- b. Molar ratios of catalyst to polyol of at least 0.01:1, with ranges of from 0.05:1 to 1:1, preferably from 0.1:1 to 0.3:1, most preferably from 0.2:1 to 0.3:1 (see page 3, lines 3-5);
- c. Reaction temperatures of from 100° to 180°C, preferably from 100-160°C., more preferably from 120-150°C., most preferably from 130-140°C. (see page 4, lines 1-3);
- d. Partial vapor pressures in the first reaction zone reduced to levels within the range of from 20-200 mbar, preferably from 35-150 mbar, more preferably from 40-125 mbar, most preferably from 40-100 mbar, with the reactions subsequent to the first reaction zone being at pressures as low as possible, such as below 50 mbar, preferably below 25 mbar, more preferably less than 10 mbar, and most preferably less than 5 mbar (see page 4, lines 6-12);
- e. use of a stripping agent (e.g., inert gases, such as nitrogen, and volatile organic compounds, preferably hexane) to insure adequate removal of generated alcohol such as methanol (see page 4, lines 15-24).

See also corresponding U.S. patent 5,043,438 (Buter), filed February 9, 1990, issued August 27, 1991.

U.S. Patent 4,298,730 (Galleymore et al.) issued November 3, 1981, is cited at page 2 of the above application as disclosing the use of soap as an emulsifying catalyst. The process disclosed in

this patent is for the preparation of a surfactant mixture containing sucrose mono- and di-esters by reacting a starting mixture including solid particulate sucrose, at least one triglyceride of a fatty acid having at least 8 carbon atoms and a basic transesterification catalyst, at a temperature of from 110° to 140° C., at atmospheric pressure and in the absence of any solvent. The improvement disclosed for this process involves using a starting mixture containing a specified amount of di-and/or mono-glyceride, at least 10% by weight fatty acid soap in addition to the basic esterification catalyst, at least 50% by weight of this soap being potassium soap, and, when the soap content is less than 20% by weight, containing at least 25% by weight sucrose.

U.S. Patent 4,778,881 (Nieuwenheis et al.), issued October 18, 1988 and corresponding European Patent Application 190,779, published June 13, 1986, disclose a method for preparing sugar esters including sucrose esters by transesterification of the sugar with one or more fatty acid esters in a first worm shaft reactor or extruder device operating at elevated temperature and pressure and then in a second reactor operating at reduced pressure and elevated temperature. See, in particular, the Example at Column 4, line 40 through Column 5, line 19, of the U.S. patent.

British patent specification 1,250,204 (Ismail), published October 20, 1971, discloses a continuous process for the preparation of saccharose (sucrose) esters of fatty acids. In this process, a solution of saccharose with an alkaline catalyst in a polar solvent, together with a solution of fatty acid ester in an aliphatic or aromatic hydrocarbon or chlorohydrocarbon, are fed continuously into a series of at least three reaction zones connected in cascade, in which the reactants are intensively intermixed at a temprature between 40° and 150°C with any alcohol liberated being distilled off under reduced pressure. The mixture issuing from the last reaction zone after a mean residence time of between 1 and 15 hours is passed to a settling vessel where it divides into two phases. The polar

solvent phase containing the saccharose esters is removed and concentrated by evaporation under reduced pressure in a dryer. See page 1, lines 31-63.

Respectfully submitted,

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January 8, 1992
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(P009/kh)